

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1           Claim 1 (original): A contour compensation circuit that generates a contour-compensated  
2           signal, by which a signal level of a contour of an object is emphasized, from an image signal  
3           obtained by an image pickup of the object, wherein

4           the generation of the contour-compensated signal is performed regarding one channel of  
5           channels that consists the image signal as a standard channel, and wherein

6           the generation of the contour-compensated signal is performed in order to prevent an  
7           occurrence of a colored edge on the contour of the object, that are caused when the contour of the  
8           object is emphasized, and

9           the contour compensation circuit comprising:

10          a reverse gamma controller, which performs a reverse gamma control on the standard  
11          channel, and obtains a liner standard channel;

12          a contour compensation signal generator, which generates a contour compensation signal  
13          from the liner standard channel;

14          a control signal generator, which computes a comparative value from the liner standard

channel and the contour compensation signal, and generates an evaluation value from a comparison between the comparative value and a threshold value, and

the control signal generator generates a plurality of delayed evaluation values by the delay of the evaluation value, and select a minimum value from among the evaluation value and the delayed evaluation values, and output a selected minimum value as a control signal;

a calculator, which computes the contour-compensated signal based on the contour compensation signal, and the control signal, and the liner standard channel;

a contour compensation signal retarder, which receives the contour compensation signal from the contour compensation signal generator, and supplies the contour compensation signal to the calculator with delay; and

a reverse gamma signal retarder, which receives the liner standard channel from the reverse gamma controller, and supplies the liner standard channel to the calculator with delay.

Claim 2 (original): A contour compensation circuit according to claim 1, wherein

the control signal generator computes the evaluation value based on formula (1), when the comparative value exceeds a maximum level of a display device,

evaluation value = (maximum level-liner standard channel)/contour compensation signal ... (1)

the control signal generator computes the evaluation value based on formula (2), when the

comparative value less than a minimum level of the display device,

evaluation value = (minimum level-liner standard channel)/contour compensation signal ... (2)

the control signal generator set the evaluation value to 1, when the comparative value less than the maximum level of the display device and the comparative value exceeds the minimum level of the display device, wherein

the maximum level means that a maximum level of a signal that can be displayed on the display device, and wherein

the minimum level means that a minimum level of the signal that can be displayed on the display device.

Claim 3 (original): A contour compensation circuit according to claim 2, wherein

the calculator including;

a multiplier, which obtains an adjusted contour compensation signal by a multiplication between the control signal entered from the control signal generator and the contour compensation signal entered from the contour compensation signal retarder; and

an accumulator, which obtains the contour-compensated signal by the accumulation between the adjusted contour compensation signal and the liner standard channel.

1           Claim 4 (original): A contour compensation circuit according to claim 2, wherein  
2           the image signal includes R (Red) channel, B (Blue) channel, and G (Green) channel, and  
3           wherein  
4           the reverse gamma controller regards the G (Green) channel as the standard channel, and  
5           performs a reverse gamma control on the G (Green) channel.

1           Claim 5 (original): A contour compensation circuit according to claim 2, wherein  
2           the image signal includes R (Red) channel, B (Blue) channel, G1 (Green 1) channel, and G2  
3           (Green 2) channel, and wherein  
4           the reverse gamma controller generates a first liner standard channel and a second line  
5           standard channel from the G1 (Green 1) channel and the G2 (Green 2) channel, respectively, by  
6           performing the reverse gamma control,  
7           the contour compensation signal generator generates a first contour compensation signal and  
8           a second contour compensation signal from the first liner standard channel and the second liner  
9           standard channel, respectively,  
10          the control signal generator generates a first control signal based on the first liner standard  
11          channel and the first contour compensation signal, and generates a second control signal based on  
12          the second liner standard channel and the second contour compensation signal,  
13          the calculator computes the first contour-compensated signal based on the first contour  
14          compensation signal, the first control signal, and the first liner standard channel, and computes the

15 second contour-compensated signal based on the second contour compensation signal, the second  
16 control signal, and the second liner standard channel,

17 the contour compensation signal retarder receives the first contour compensation signal and  
18 the second contour compensation signal from the contour compensation signal generator, and  
19 supplies them to the calculator with delay, and

20 the reverse gamma signal retarder receives the first liner standard channel and the second  
21 liner standard channel from the reverse gamma controller, and supplies them to the calculator with  
22 delay.

1 Claim 6 (original): A method for performing a contour compensation that generates a  
2 contour-compensated signal, by which a signal level of a contour of an object is emphasized, from  
3 an image signal obtained by an image pickup of the object, wherein

4 the generation of the contour-compensated signal is performed regarding one channel of  
5 channels that consists the image signal as a standard channel, and wherein

6 the generation of contour-compensated signal is performed in order to prevent the occurrence  
7 of a colored edge on the contour of the object, that are caused when the contour of the object is  
8 emphasized, and the method comprising the steps of:

9 a reverse gamma control step, in which a liner standard channel is obtained by performing  
10 a reverse gamma control on the standard channel;

11 a contour compensation signal generation step, in which a contour compensation signal is

generated from the liner standard channel;

a control signal generation step, in which a comparative value is computed from the liner standard channel and the contour compensation signal, wherein

an evaluation value is generated from a comparison between the comparative value and a threshold value, and a plurality of delayed evaluation values is generated by the delay of the evaluation value, and a control signal is generated by selecting the minimum value from among the evaluation value and delayed evaluation values, wherein

the evaluation value is computed based on formula (1), when the comparative value exceeds a maximum level of a display device,

evaluation value = (maximum level-liner standard channel)/contour compensation signal ... (1)

the evaluation value is computed based on formula (2), when the comparative value less than a minimum level of the display device,

evaluation value = (minimum level-liner standard channel)/contour compensation signal ... (2)

the evaluation value is set to 1, when the comparative value less than the maximum level of the display device and the comparative value exceeds the minimum level of the display device, wherein

the maximum level means that a maximum level of a signal that can be displayed on the display device, and wherein

the minimum level means that a minimum level of the signal can be displayed on the display device;

a calculation step, in which a contour-compensated signal is computed based on the contour compensation signal, and the control signal, and the liner standard channel;

a contour compensation signal delay step, in which the contour compensation signal entered from the contour compensation signal generator is supplied to the calculator with delay; and

a reverse gamma signal delay step, in which the liner standard channel entered from the reverse gamma controller is supplied to the calculator.

Claim 7 (currently amended): A storage medium readable by a computer, having stored thereon a program of instructions executable by the computer to operate ~~that operates~~ an apparatus so that the apparatus generates a contour-compensated signal, by which a signal level of a contour of an object is emphasized, from an image signal obtained by an image pickup of the object, wherein the generation of the contour-compensated signal is performed regarding one of channels that consists the image signal as a standard channel, and wherein the generation of contour-compensated signal is performed in order to prevent the occurrence of a colored edge on the contour of the object, that are caused when the contour of the object is emphasized, and the program comprising the functions of:

10 a reverse gamma control function, by which a liner standard channel is obtained from the  
11 standard channel by a reverse gamma control;

12 a contour compensation signal generation function, by which a contour compensation signal  
13 is generated from the liner standard channel;

14 a control signal generation function, by which a comparative value is computed from the liner  
15 standard channel and the contour compensation signal, and an evaluation value is generated from  
16 a comparison between the comparative value and a threshold value, a plurality of delayed evaluation  
17 values is generated by the delay of the evaluation value, and a control signal is generated by selecting  
18 the minimum value from among the evaluation value and delayed evaluation values, wherein

19 the evaluation value is computed based on formula (1), when the comparative value exceeds  
20 a maximum level of a display device,

21 
$$\text{evaluation value} = (\text{maximum level} - \text{liner standard channel}) / \text{contour compensation signal} \quad \cdots(1)$$

22 the evaluation value is computed based on formula (2), when the comparative value less than  
23 a minimum level of a display device,

24 
$$\text{evaluation value} = (\text{minimum level} - \text{liner standard channel}) / [1] \text{contour compensation signal} \quad \cdots(2)$$

25 the evaluation value is set to 1, when the comparative value less than a maximum level of



26 a display device and the comparative value exceeds a minimum level of a display device, wherein  
27 the maximum level means that the maximum level of the signal that can be displayed on a  
28 display device, and wherein  
29 the minimum level means that the minimum level of the signal can be displayed on the  
30 display device;  
31 a calculation function, in which a contour-compensated signal is computed based on the  
32 contour compensation signal, and the control signal, and the liner standard channel;  
33 a contour compensation signal delay function, by which the contour compensation signal  
34 entered from the contour compensation signal generator is supplied to the calculator with delay; and  
35 a reverse gamma signal delay function, by which the liner standard channel entered from the  
36 reverse gamma controller, is supplied to the calculator.

1 Claim 8 (original): An image signal display device that generates a contour-compensated  
2 signal, by which a signal level of a contour of the object is emphasized, from an image signal  
3 obtained by an image pickup of an object, wherein  
4 the generation of contour-compensated signal is performed in order to prevent the occurrence  
5 of a colored edge on a contour of the object, that are caused when the contour of the object is  
6 emphasized,  
7 and wherein the object is displayed based on the contour-compensated signal, the image signal  
8 display device comprising:

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Reply to OA dated January 9, 2007

9           a contour compensation circuit of claim 2;  
10           a gamma controller, which performs the gamma control on the contour-compensated signal  
11   supplied from the contour compensation circuit, and obtains a converted contour-compensated  
12   signal; and  
13           a display device, which displays the object based on the converted contour-compensated  
14   signal.

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